We claim:

15. A detector system for a particle beam apparatus, having a target structure arranged in a beam path of said particle beam apparatus, wherein said target structure has a near axis region adjacent to the optical axis of the particle beam apparatus, a central region of a strongly electron-converting material, and a region remote from said optical axis at which said target structure is received within said particle beam apparatus central region.

16. The detector system according to claim 15, wherein said region remote from said axis comprises a half ring and said region near said axis comprises a web connecting ends of said half ring remote from said axis.

17. The detector system according to claim 15, wherein said target structure comprises a flat diaphragm and said region remote from said axis comprises a weakly electron-converting material.

18. The detector system according to claim 15, wherein said region remote from said axis is spaced further apart in the direction of said optical axis than said region near said axis.

19. The detector system according to claim 15, further comprising a detection system for detection of conversion electrons emitted from said region of

electron-converting material.

20. A particle beam apparatus having a detector system according to claim 15.

21. The particle beam apparatus according to claim 20, further comprising a deflecting system comprising at least an electrostatic deflecting field or a magnetic deflecting field arranged before the detector system in the direction of particles emerging from a specimen, said electrostatic deflecting field and said magnetic deflecting field being aligned perpendicularly of each other.

22. The particle beam apparatus according to claim 21, wherein said electrostatic deflecting field and said magnetic deflecting field are arranged offset from each other in the direction of said optical axis of the particle beam apparatus.

23. The particle beam apparatus according to claim 21, comprising two magnetic deflecting fields and an electrostatic deflecting field.

24. The particle beam apparatus according to claim 20, further comprising a detection system for detection of said particles emitted from said region of electron-converting material, said detection system being at a positive potential with respect to said target structure.

25. The particle beam apparatus according to claim 24, wherein said detection system includes an electrode.

26. The particle beam apparatus according to claim 25, wherein said electrode comprises one of a grid electrode or a perforated diaphragm.

27. The particle beam apparatus according to claim 24, further comprising a beam guiding tube for said particle beam apparatus wherein said detection system is arranged outside said beam guiding tube behind a hole through a wall of said beam guiding tube or in a region of an interruption of said beam guiding tube.

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28. The particle beam apparatus according to claim 21, wherein said electrostatic field and said magnetic field are settable independently of each other.

29. The particle beam apparatus according to claim 27, wherein said target structure is at a potential of said beam guiding tube.

30. The detection system according to claim 15, wherein said particle beam apparatus comprises a scanning microscope.

31. The particle beam apparatus according to claim 20, wherein said particle beam apparatus comprises a scanning microscope.